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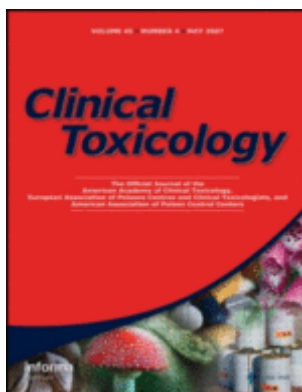
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Response to Bayer regarding pesticide suicides

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Manuscript Type:	Letter
Keywords:	Pesticides, Suicides, Regulation
Abstract:	

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Manuscripts

Dear Sir

We thank Dr Dunn and colleagues from Bayer Crop Science for responding to our recent article estimating the total number of pesticide suicides that have occurred since the Green Revolution.

We did not question the Green Revolution per se, only its introduction of highly hazardous pesticides into communities completely unable to use or store them safely. Much less hazardous pesticides could have been used, either initially or by the late 1960s when the immense harm that they were causing had already become apparent [1, 2]. It was their easy availability at times of (completely predictable) stress that resulted in deaths.

It is great to learn that the pesticide industry is now concerned about suicide. This was not the case for a long time when the major emphasis was on 'proper' use, blaming all problems including suicide on 'misuse' [3, 4]. As we stated, pesticide suicides should be considered a Schilling category 4 occupational condition. It is not that these compounds are 'misused', they just could never have been used safely by these small scale farmers, as so eloquently highlighted more than 50 years ago by Vethanayagam [1].

If the industry was really concerned about suicide, it would immediately stop producing all WHO Hazard Class I pesticides, in particular phorate which can still be bought by non-professionals in concentrated formulations in India. This pesticide has the same rat oral LD50 as the nerve agent sarin (both 0.5 mg/kg). Does the industry think it reasonable that people are given bottles of 'sarin-equivalent' toxicity pesticides and urged to use them 'safely'? Would this be accepted in the USA or Europe?

And if suicide was a priority, then the industry would actively take paraquat (case fatality >40% [5]) out of small-scale use and work with communities to find other, ideally non-chemical alternatives.

In the continued absence of action by industry to accept its role in pesticide suicides and to stop producing such highly hazardous pesticides, it is left to governments to decide how best to protect their population with legislation that removes problematic pesticides from use [6]. Government must also prevent the entry of highly hazardous pesticides across borders. However, many do not have sufficient resources. Coordinated action across government, industry and international agreements is required to prevent the easy availability of such pesticides.

We did not state that there were no farmer suicides before 1960, only that there were very few pesticide suicides. Farmer suicides cannot be conflated with pesticide suicides (the subject of our article). They are but a small (although highly visible) part of the problem. In India, for example, where farmer suicides are a major political issue, there are about 15,000 suicides of land-owning (therefore nearly always male) farmers each year [7], around half by pesticide ingestion. But there are an estimated 230,000 suicides in India each year [8], with around 70,000 (30% of all suicides) by pesticide ingestion (9.3 times the number of 'farmer pesticide suicides') [8, 9]. Unfortunately, these deaths - of family members, of children, and non-farming households who can access pesticides - receive little attention.

One key point to remember is that suicide impulses are transient and may last only minutes or hours. The absence of a lethal method (such as a gun or highly hazardous pesticide in the house) during that period massively increases the chance that the person will use a less lethal method (such as medicine ingestion), thereby surviving, or not harm themselves at all. This saves lives, as clearly shown by the data from Sri Lanka and other Asian countries that have carried out pesticide regulation to prevent suicides [10].

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